

## REMARKS

This response is being submitted in response to a final office action mailed October 15, 2007. Claims 40-78 are pending.

### Rejections Under 35 USC §112

Claims 43, 50, 54 and 72 were rejected under 35 USC §112, first paragraph, as failing to comply with the written description for introducing new matter. This rejection is traversed. These claims recite "minimum hydraulic fracture pressure of the ore deposit." The specification at page 5, lines 4-5, recites "minimum hydraulic pressure of the deposit being mined." This recital in combination with the referenced claims of the parent patent '809, provide the written description support for claims 43, 50, 54 and 72. This rejection should be withdrawn.

Claims 40-78 were also rejected under 35 USC §112, first paragraph, as failing to comply with the enablement requirement, specifically for lack of enabling the "recovery of sodium bicarbonate from any ore deposit primarily comprising sodium bicarbonate." This rejection is traversed. The specification at page 13, lines 7-8 (which corresponds to para. 43 in the published application) recites that Nahcolite is an "ore containing primarily sodium bicarbonate (bicarb) as the water soluble salt." The Office Action states that "trona ore is also 'primarily sodium bicarbonate'." Solution mining of both trona and nahcolite is generally known in the art. The rejection rejects the present claims of obviousness relying upon US 4,815,790 to Rosar et al. Rosar et al. identifies two patents in its background section (col. 2, lines 33-60), Towell et al. (US 3,792,902 and Beard (US 3,759,574) as each teaching dissolution of sodium minerals from trona or nahcolite using a hot aqueous solution. Accordingly, as the Office Action admits both trona ore and nahcolite are primarily sodium bicarbonate, and also relies upon prior art that refers to known solution mining techniques applicable to both trona and nahcolite, the present application's disclosure of a preferred embodiment of nahcolite provides adequate enablement to one of ordinary skill in the art for any ore that is primarily

U.S. Application No. 10/791,631  
Amendment dated October 31, 2007  
Final Office Action mailed October 15, 2007

sodium bicarbonate, whether that ore is nahcolite or trona. Therefore, the rejection should be withdrawn.

### **Rejections Under 35 USC §103**

Claims 40-78 were rejected under 35 USC 103 as being obvious over the combination of Rosar et al (US 4,815,790) and Prats et al. Applicants traverse this rejection.

The Office Action bases its rejection in that Rosar teaches a hot aqueous solution with a temperature of "about" 250°F. However, Rosar teaches an injection liquor temperature of below about 250°F, preferably in the range of 85-235°F (col. 9, lines 15-18). The temperature of the solution exiting the cavity is necessarily lower, particularly in light of the fact that the cavity temperature is maintained at approximately 190°F (col. 9, line 14). In particular, Rosar teaches that the temperature of the solution withdrawn from the cavity is in the range of about 80°F to 200°F (col. 5, lines 17-18). Thus, the temperature range of the production solution disclosed in Rosar is significantly below the temperature required in claims 40 and 71. Rosar provides no suggestion to increase the temperature of the production solution above that recited in claims 40, 55, 71 and 76.

Moreover, Prats does not teach solution mining with hot water of the requisite temperature. Prats teaches the use of low pressure steam, not liquid water. (See Prats at 1085 ). Claims 40 and 71 clearly show that the hot aqueous liquid is maintained at a sufficiently high pressure to prevent the formation of water vapor. As noted in the background section of the present application at pages 2 and 3), injection of steam causes too much fracture of the oil shale formation and has too little water content to adequately dissolve the nahcolite. Prats discloses that the steam caused too much flow impairment for the process to work effectively. (Prats at 1085-1087). Thus, Prats, even in combination with Rosar, does not teach the injection of water or other hot aqueous

U.S. Application No. 10/791,631  
Amendment dated October 31, 2007  
Final Office Action mailed October 15, 2007

liquid solution as claimed by Applicants in independent claims 40 and 71. Therefore, the rejection should be withdrawn.

#### **SUMMARY**

Applicants believe the present application is now in condition for allowance. If the Examiner has any remaining issues, he is invited to contact the undersigned attorneys for the Applicants via telephone if such communication would expedite this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Marc V. Richards", written over a horizontal line.

Marc V. Richards  
Registration No. 37,921  
Attorney for Applicants

BRINKS HOFER GILSON & LIONE  
P.O. BOX 10395  
CHICAGO, ILLINOIS 60610  
(312) 321-4200